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IMPROVING SLEEP QUALITY AND HOURS IN PATIENTS IN THE OUTPATIENT PSYCHIATRIC SETTING USING SLEEP HYGIENE EDUCATION AND SCREENING TOOLS

Michelle Sadler

A project submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctorate of Nursing Practice in the Doctor of Nursing Practice Program in the School of Nursing.

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Approved by:

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ABSTRACT

Michelle Sadler: Improving Sleep Quality and Hours in Patients in the Outpatient Psychiatric Setting Using Sleep Hygiene Education and Screening Tools

Insomnia affects millions of people each year and has been shown to have a detrimental effect both physically and emotionally. Sleep hygiene has been proven to be an effective way for individuals to take proactive measures to ensure an environment that supports natural sleep with no harmful effects as seen with many medications. The purpose of this project was to implement screening of patients in an outpatient psychiatric setting for insomnia, and to provide sleep hygiene education to those identified as having insomnia.

The Pittsburg Sleep Quality Index (PSQI) has been used for many years and has been proven to be an effective and reliable measurement tool for insomnia. This questionnaire was originally to be administered during office visits, but physical office closure and transition to telehealth due to the Covid pandemic, as well as a high staff turnover, protocol adjustments were made. The PSQIs were sent to patients via an email campaign by care providers. Those identified as having insomnia were then sent the sleep hygiene educational packet for study and review. This method proved to be ineffective of screening for insomnia due to low response rates and is not sustainable over time in regular daily practice.

ACKNOWLEDGEMENTS

Thank you to Dr. Carrie Palmer, who guided me and served as my DNP committee chair during this quality improvement project. Your constant encouragement, despite the obstacles and many setbacks during this time were invaluable to me. I am beyond thankful for your constant encouragement and insights during this time.

Thank you, Dr. Jennifer Alderman for your eager willingness to serve as co-chair on my project and for your time in making this possible. Thank you for your positive feedback during this process.

Lastly, I would like to thank Larisa King, PMHNP, who played a key role in the implementation of my project as the site champion for the practice. Without your guidance, encouragement, and help in developing ideas, this would not be possible.

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LIST OF ABBREVIATIONS AND SYMBOLS

CBT	Cognitive behavioral therapy
CDC	Centers for Disease Control and Prevention
CINAHL	Cumulative Index of Nursing and Allied Health Literature
DNP	Doctor of Nursing Practice
EEG	Electroencephalogram
EMR	Electronic medical record
GSAQ	Global Sleep Assessment Questionnaire
MRI	Magnetic resonance imaging
PET	Positron emission tomography scan
PMHNP	Psychiatric Mental Health Nurse Practitioner
PSQI	Pittsburg Sleep Quality Index
QI	Quality Improvement

CHAPTER 1: INTRODUCTION OF THE PROJECT

Problem Statement

Insomnia is defined as the inability to fall asleep, remain asleep throughout the night, or waking much earlier than anticipated. It affects approximately one third of the adult population (Winkleman, 2015). Insomnia can negatively affect adults seeking outpatient psychiatric treatment, with an impact on mood, cognition, and physical health, despite the use of medication (Maness, 2015). Insomnia is the most reported sleep disorder and is often the cause of other medical and mental health conditions, including depression, anxiety, difficulty in maintaining attention, etc. (Manzar et al., 2018). The magnitude of the problem and available behavioral interventions indicates a significant need to assess sleep issues in their outpatient psychiatric care setting (Sorscher, 2017).

Adult psychiatric patients frequently complain about difficulty sleeping, fatigue and lack of motivation, as well as trouble maintaining focus at work, school and home, which can also lead to an increased risk of suicide and substance abuse (Maness, 2015). These complaints may indicate sleep disturbances and can impact their ability to function safely and effectively in daily life. There is a strong correlation between anxiety, depression and increased insomnia (Tanaka, M. et al., 2019). Insomnia is the most reported sleep disorder and is often the cause of other medical and mental health conditions, including depression, anxiety, difficulty in maintaining attention, etc. (Manzar et al., 2018). Physical changes chronic insomnia may include cardiac disease as well as slowing of cognition and drowsiness, which may increase the chances of accidents and motor vehicle crashes (Manzar et al., 2018). The magnitude of the problem and

available behavioral interventions indicates a significant need to assess sleep issues in their outpatient psychiatric care setting (Sorscher, 2017). Sleep hygiene is a strategy that provides patient with tools to improve both their physical environment and personal habits that can improve sleep (Cais, Scott, Halson & Kelly, 2018).

Purpose of Project

The purpose of this practice change project is to implement a standard sleep hygiene screening tool in an outpatient psychiatric practice setting in order to promote better sleep hygiene education to any patient identified with insomnia.

Search Strategy

Several database search tools were utilized for the search of data, using the limitations of English, humans, and ages 19 and older. The search terms used for Pubmed were as follows: (sleep hygiene education) AND (sleep hygiene AND "last 5 years"[PDat] AND Humans[Mesh] AND English[lang] AND adult[MeSH]). This resulted in a total of 128 articles, of which 31 were chosen from the review. A second search conducted using Pubmed included the terms: Search ((insomnia) AND sleep education) AND sleep index Sort by: Best Match Filters; published in the last five years; Humans; Adult: 19+ years. A total of 153 articles were identified and 26 were chosen to use from this review.

A second search for terms using Pubmed for validity and reliability were as follows: (Test–retest reliability and validity of the Pittsburgh Sleep Quality Index in primary insomnia); filters: Full text, from 2015 – 2020. This resulted in a total of 20 articles, of which two were chosen from the review.

The search from CINAHL were as follows: Boolean/Phrase – insomnia AND primary care. Limiters were publishing dates between 2014 and 2019, English as the language, and all adult. This provided 63 results, of which seven were chosen from this review.

CHAPTER 2: REVIEW OF LITERATURE

Seven articles on the benefits of screening for insomnia were reviewed. Five were systematic reviews, Level 1 (Klingman, Jungquist, & Perlis, 2015; Morin, C. et al, 2015; Sorscher, A., 2017; Winkleman, J. W., 2015; Manzar et al., 2018), one was a randomized control study, Level II (Tanaka, M. et al. 2019), and one was a cross-sectional study design, Level IV (Gunes, Z., Arslantas, H., 2017).

Literature regarding strategies for sleep hygiene was reviewed. One was a systematic review, Level 1 for evidence of sleep hygiene effectiveness (Dietrich, S. et al., 2016), one was a systematic review, Level 3 review of empirical evidence of the promotion of sleep hygiene (Irish et al., 2015). Another article was a meta-analysis and systematic review, Level 1 appraising the effectiveness and measurement properties of the PSQI (Mollayeva et al., 2015).

Significance of Treating Insomnia

While there are several different causes for insomnia, it can have lasting and harmful effects on individuals, resulting in a diminished quality of life (Morin C. et al., Sorscher, 2017; Tanaka, M. et al., 2019; Winkleman, 2017). Chronic insomnia is one of the most often voiced complains providers hear in the clinical setting and is linked with feelings of unhappiness and overall poor health (Sorscher, 2017; Winkleman, 2017). Women are found to suffer from insomnia at a higher rate than men (Morin, C. et al., 2015; Sorscher, 2017; Tanaka, M. et al., 2019; Winkleman, 2017).

Many people experience episodes of difficulty sleeping, particularly when life is more stressful, which can lead to depression and other health related conditions (Sorscher, 2017).

According to the Centers for Disease Control and Prevention (CDC) (2019), sleep deprivation is now considered a "public health problem", which affects over one third of the American population, and is linked to a multitude of chronic diseases such as depression, cardiovascular disease, obesity and type 2 diabetes. The American Psychiatric Association (2013) states that in order to meet the requirements for a diagnosis of insomnia, one must have both daytime impairment of functioning related to disturbed sleep, as well as disturbed sleep that is present for a minimum of three nights per week for a duration of at least three months.

There are many different treatments available for addressing insomnia. These methods may include psychotherapeutic interventions, such as sleep hygiene and medication. There are several risks in treating insomnia with medication, including abuse or dependence, balance problems, falls, cognition issues, and rebound insomnia (Bollu, P, Kaur, H., 2019). Cognitive Behavioral Therapy (CBT) is the treatment of choice due to its effectiveness; however, there are time and cost constraints, as well as lack of availability for many patients (Morin, C. et al., 2015; Sorscher, 2017; Tanaka, M. et al., 2019; Winkleman, 2017).

Incorporating the use of sleep diaries by patients is also another good way to involve patients in their own care. Sleep diaries are provided to those identified with insomnia and are filled out daily by patients, tracking quality and amount of sleep. Patients are encouraged to bring them to each visit for review by providers. They are widely used subjective sleep assessments which are reliable, easy to use, cost-effective and portable (Short et al, 2017). By having the sleep diary information at hand for reflection, it results in greater insight for the patient and provider regarding their sleep habits and allow for continued improvements.

Overall, studies have shown that a decrease in insomnia and interrupted sleep can lead to a continued reduction in hallucinations and overall paranoia (Freeman et al., 2017). A noted

reduction in nightmares, anxiety, depressive symptoms and daily functioning were also reported overall with improved sleep (Freeman, et al., 2017).

Measurement Tools

Although there are multiple ways to measure quality of sleep in the adult patient population, the Pittsburgh Sleep Quality Index tool (PSQI) (Appendix A) is the most widely studied and used tool, found in nearly 2000 articles in a Pubmed database search and trending upwards (Mollayeva, et al., 2015). Although widely used, the PSQI has a limitation in the dimensionality of the questionnaire such as requiring further study to confirm its findings (Manzar et al., 2018). According to Manzar et al (2018), the PSQI is an easily implemented and validated tool for measuring sleep. The PSQI addresses sleep quality over the past month using 19 Likert scale questions including factors such as sleep duration, daytime dysfunction, sleep disturbances, and use of sleep medications. The scale is based on scores ranging from 0-21, with the higher score representing worse sleep quality; scores that are five or greater indicate a sleep disturbance and help identify those who need an intervention (Faulkner, 2019).

One study conducted at the University of Freiburg, Germany, had a sample of 80 patients with primary insomnia which showed the PSQI test-retest reliability was high; the correlations between the PSQI results and sleep electroencephalograms (EEG) validated its accuracy in diagnosis (Backhaus et al., 2002). One meta-analysis of the PSQI's reliability and validity was carried out by Mollayeva (2015), which found it to be strong in both categories and is a reliable tool for diagnosis of insomnia. Of the 32 studies reviewed, 12 studies reported Chronbach's alphas resulting in all except three showing ranges between 0.70-0.83 (positive rating), the remaining three that scored below 0.70 included groups that suffered from chronic fatigue syndrome (Mollayeva et al., 2015). Overall the PSQI was found to be a very simple tool to use to

identify insomnia and could be done in an average of five to ten minutes by patients in both clinical and non-clinical settings (Mollayeva et al., 2015).

Another study similarly found the Global Sleep Assessment Questionnaire (GSAQ) is also a valid, reliable, comprehensive screening tool and is easy to use in the primary care setting (Klingman, Jungquist, & Perlis, 2015). The GSAQ also considers factors such as mood disturbance, work shift, and medications (Klingman, Jungquist, & Perlis, 2015). Due to conflicting evidence between outcomes of measurement tools, more conclusive studies may be needed such as functional PET scans, functional MRIs, and EEGs which may give greater details into the actual quality of sleep (Morin, C. et al., 2015).

Summary

The use of teaching sleep hygiene methods and techniques can be very effective in giving patients tools they can incorporate into their nightly rituals, and it serves as a much cheaper alternative to psychotherapy (Sorscher, 2017; Winkleman, 2017). Sleep hygiene information can be given to the patient by the nurse or provider in the outpatient setting both verbally (which can take place in just a few minutes), and in printed form for review and ease of use and is an easy and cost-effective method for both providers and patients.

Sleep hygiene methods are a low-cost and common-sense approach to insomnia, and include tips such as restricting caffeine, sticking to regular bedtimes, taking warm showers prior to going to bed, and avoiding television or cell phone use in the bedroom (Sorcher, 2017). Regular exercise, which includes low-impact aerobics, can increase sleep quality (Maness & Khan, 2015). According to Irish et al., (2015), caffeine consumption close to bedtime interrupts sleep, as does alcohol which can initially cause patients to sleep but arouse during the latter half of the night. According to Irish, et al. (2015), a reduction in noise has been proven to improve the quality of sleep, as does following regular sleep schedules and avoiding daytime naps. In one

sleep hygiene study, most of the patients stated a month later that the techniques had helped them improve sleep and at a one-year follow up they reported a continued help in their sleep quality (Hauri, 1993).

CHAPTER 3: CONCEPTUAL FRAMEWORK: THE IOWA MODEL

The Iowa Model of Evidence-Based Practice to Promote Quality Care (see Appendix C) is one that enables healthcare leaders to incorporate the use of evidence-based practice (EBP) into solving everyday problems that arise in clinical settings (Brown, 2014). It was initially developed by a team of nursing leaders at the University of Iowa Hospitals and Clinics and was headed by Marita G. Titler, PhD, RN, FAAN in an effort to guide the translation and implementation of research into practice (Dontje, 2008). The Iowa Model is easy to understand and provides an easy-to-follow plan on how to use an intervention to solve a clinical problem and to make positive improvements in practice outcomes (Brown, 2014).

CHAPTER 4: PROJECT DESIGN

This project was a program intended to educate providers and therapists on the use of a sleep quality screening tool with their patients in a private psychiatric practice setting, with the hopes of identifying those who met criteria for insomnia. The intended outcome of the implementation of this tool was to provide those patients who were identified as having insomnia with a sleep hygiene information packet that they could then utilize at home on their own time to improve sleep quality and hours. Studies have shown that sleep hygiene education can lead to positive changes in the amount of sleep overall but requires that it be positively reinforced over time to maintain results (Caia et al, 2018).

CHAPTER 5: METHODS

Setting and Participants

This sleep hygiene educational program was implemented in a private practice setting, which offers medication management for patients as well as individual therapy, including Cognitive Behavioral Therapy, Dialectical Behavioral Therapy, psychotherapy, and trauma-based therapy. This practice setting was chosen for this project because many of the patients complained about insomnia, and lacked knowledge regarding sleep hygiene on assessment.

Initially when starting this QI project, there were seven therapists and three psychiatric nurse practitioners to serve the patients in the practice.

Recruitment

Prior to holding planned staff meetings for education, a separate pre-intervention online survey (see Appendix E) was sent to determine the providers' baseline knowledge of sleep hygiene strategies; however, due to significant staff turnover, only two of the nine surveys were completed.

A project champion, a psychiatric mental health nurse practitioner, who has been in the practice for nearly three years, was identified. She was instrumental in developing new ideas when faced with challenges throughout each phase. The PSQI screening tool was to be given during the face-to-face routine patient visit over a three-week period. This was changed to email due to the adaptation of telehealth visits within the practice.

Resources and Budget

There was no cost involved with this project, as meetings with project champion were held during after work hours as well as over the phone. All communication with patients were sent via email.

Implementation Barriers and Solutions

As with any type of change in an organization, practice change can be difficult due to many factors. Perhaps the biggest hurdle is the motivation of staff and providers. The level of involvement of staff in the initial planning and implementation stages is imperative to their motivation (Sommerbakk et al, 2016). Having a sense of ownership and personal responsibility in work-related projects is central in keeping their interest and motivation. According to Lalani et al (2018), in their study of QI motivation among healthcare team members, they found that many participants felt seeing the positive effects of the improvement initiative first-hand gave them a feeling of individual achievement, which served as a great motivator to continue the work. Many of the psychiatric providers within this organization have been there for several years and have developed their own personal style of carrying out patient assessments over time. Engagement and buy-in of clinicians in the practice is vital in the QI project's long-term success.

One solution in overcoming provider and stakeholder resistance to change is the identification of project champions who serve as team leaders. According to Miech et al (2018), project champions should be internal to the healthcare practice, possess an intrinsic commitment to the change, work relentlessly to push for the change, be dynamic and enthusiastic, be personable, and have a deep belief in the change itself. In this QI initiative, it will be of utmost importance to identify champions early in the implementation and planning process to ensure that providers are motivated and have cheerleaders to encourage them in making changes for the benefit of their patients under their care. Within the practice there are five different locations,

which will require finding a trusted champion in each one to ensure continuation of the QI initiative on a larger scale for sustainability.

Another possible barrier to the success of this QI project is a perceived and real lack of time for implementation due to compacted schedules and short office appointment allotments. The average appointment time in the practice is 15-25, which can prove to be a very small amount of time when assessing and discussing their concerns and mental health status. According to Heath (2018), one study reveals that roughly 85% of providers report they do not have an adequate amount of time to spend with their patients to discuss all their pressing issues. It may prove to be more difficult in encouraging change when their perception is that there is already not enough time in their day prior to implementation.

During this project, there were many unforeseen barriers and circumstances prior to implementation, leading to protocol adjustments. For example, there was an unexpected turnover of staff, including several therapists, each leaving the practice for unrelated personal reasons during this time and one nurse practitioner who left to go to another location. Another major and unexpected event that changed the ability to continue the project as planned was the onset of the Covid-19 Pandemic, an unprecedented time for both patients and providers. During this time, the physical practice location was closed and appointments were moved strictly to telehealth format.

Ethics and Human Subjects Permissions

This quality improvement project was not found to be Human Subjects Research as determined by the Institutional Review Board at the University of North Carolina at Chapel Hill on May 11, 2020.

CHAPTER 6: INTERVENTION

During this QI project, many adjustments were necessary during the implementation period. Email surveys inquiring baseline knowledge about sleep hygiene and insomnia were sent to providers resulting in only two responses, at a rate of 22.22%. According to the responses received, insomnia was identified as a common patient complaint that should be addressed. An introductory stakeholder meeting was held at the practice during a routine weekly staff meeting time. Educational materials which included a PowerPoint handout regarding insomnia and sleep hygiene were given to providers for review, as well as a paper copy of the PSQI screening tool to be used. Subsequent in-person staff meetings were planned for the education of care providers regarding sleep hygiene and screening tools, as well as weekly follow-up meetings to track progress; however, due to Covid and staff turnover, this was not feasible.

Patients were to receive the PSQI handouts from the secretary upon check-in to complete prior to their usual in-person routine visits. Due to the physical closure and transition to telehealth, the screening tool was sent via email. A total of three emails were sent to each patient over the three-week period, encouraging them to complete the PSQI screening tool. Sleep hygiene teaching packets were to be given to patients in printed booklet form, but were instead delivered via email to those patients who responded to the email.

CHAPTER 7: DATA COLLECTION AND OUTCOMES

A total of 484 adult patients ages 18-65 were scheduled for a follow-up visit over the three-week period. Each patient was sent an email with the attached PSQI form to complete independently. After sending the initial batch of emails, only one patient responded; they were identified as having insomnia and were sent the sleep hygiene packet. Two additional reminder emails were sent out to all patients on the same list, encouraging them to complete the form, of which only three additional responses were received at the end of the project intervention. Out of 484 patients contacted, only four total replies were received, for a response rate of 0.826% overall.

CHAPTER 8: DISCUSSION

Based on the data that was received during implementation, sending the PSQI form via email was not effective, as the response rate was very low from patients, even with three emails sent encouraging their participation. Patients did not engage, as several stated they were already overwhelmed from the large amount of emails they routinely receive from the practice with appointment reminders, and from billing.

Providers had a high rate of turnover and were not vested in completing the surveys, as they were leaving the practice. The remaining employees were sent home due to Covid and the temporary closing of the practice location.

Implications for Practice

One suggested change to improve the outcomes of the current project setting is the use of short verbal screening questions that providers can easily ask during follow up appointments, which can then quickly help to identify patients with possible insomnia. If patients meet criteria, they can then be asked further questions using a shorter screening form built into the EMR that providers can fill out to confirm insomnia. Further literature review would be needed to determine a more feasible method and questions. Another suggestion is the use of online sleep hygiene education modules that are fun and interactive for patients to utilize at their own pace. This can be suggested easily during telehealth visits by providers with minimal effort and time.

There are several applications for smart phones that assist people in falling asleep, such as those with white noise and meditation, for example. These could also be suggested to patients for use at home. Farokhnezhad et al. (2016) suggests that noise is a common factor in those who

have difficulty in sleeping, which can be helped with the use of white noise to fall asleep faster and maintain sleep hours.

This project could be implemented again, as it was originally designed, when patients are able to return to in-person routine visits, as prior to the Covid pandemic onset. This will allow more effective data collection and promotion of sleep hygiene education to patients.

Sustainability

Sustainability in any QI project is the essence of continued practice change and growth. According to Silver et al (2016), solid stakeholder involvement is dependent on the ease of use of the implementation, as well as identifying common purposes with providers that carefully takes into consideration their time requirements and input.

According to the data obtained through the email response for the PSQI screening tools, this quality improvement project in its final online format was unsustainable. The patient response was very low, as compared to what was originally expected had it been carried out in a face-to-face format in the office during patient visits. This format is not a mechanism that will work in the current Covid pandemic situation, and is best suited for an in-person patient visit.

If able to carry on with the project in its original format on an in-person basis, sustainability would be measured in several different ways. Charts would be reviewed quarterly for monitoring of the screening tool use among providers, as well as documentation of those patients identified as having insomnia being provided with sleep hygiene education. Patient outcomes and compliance numbers would be shared to the company newsletter as an encouragement for continuation. Goals and percentages of provider compliance/patient improvement scores would be set and adjusted as well, and would be displayed on communication boards in staff common areas for review. Biannual follow up with providers regarding screening tool use and continued education at each practice location would help to

maintain use of the sleep assessment intervention. Provider and patient feedback would also be encouraged and considered in the revision of goals.

Strengths and Limitations

Poor email responses during this project may be due to several different factors. A lack of direct relationship and rapport surrounding emails may play a huge part in low email conversion rates as well as in survey completions (Temple, 2011). According to Saleh (2017), email checking habits, the method in how the survey is built, as well as the length of the survey, timing, and participant interests all affect the response rates within different groups. Survey and email fatigue may also serve as an explanation of declining email responses throughout the years (Munoz-Leiva, et al., 2010).

The lack of participation in this project may also be attributed to the mental health stressors associated with the Covid-19 pandemic. According to Pfefferbaum (2020), there has been a recent increase in emotional isolation, stress, irritability, frustration, and non-adherence related to public health, anxiety, and emotional distress overall due to the pandemic and quarantine. Feelings of being overwhelmed may very well play a role in the low project email response.

Another detraction from this project related to staff turnover, was the inability to involve therapists in assessing and administering the screening tool during the study. In speaking with the remaining therapists and providers, they reported being overwhelmed themselves with the increase in their workload due to lack of staff and the increase inpatient anxiety.

In speaking directly with several patients as to their reason for not responding to the email, one common theme was that they were already bombarded with emails for appointment reminders, emails for their children's schooling, work, etc. and many stated they did not open the email and deleted it upon receipt. Of those who did respond, one patient in particular reported

that she did not realize how much the use of her cell phone had impacted her sleep. She stated she was staying up on her phone until 1-2:00 am at times. After reviewing the sleep hygiene education, she began to place her phone across the room prior to going to bed and she had an increase of sleep to nearly eight hours each night without the use of medications.

Recommendations for the Future

The PSQI contains several questions, which may be overwhelming for participants. It would be beneficial to develop and use a briefer screening tool for insomnia that could be adopted in the EMR to identify patients earlier who may qualify for further study for insomnia. Reviewing relevant literature to determine appropriate questions for the shorter screening tool is needed. A brief form could lessen the impact to staff workload compared to the PSQI. It is not feasible to review the PSQI in a telehealth format as well due to its length and complexity for both providers and patients. It could also be beneficial to have an online series of free sleep hygiene courses for those identified as having sleep problems. One in which patients can have access to on their own time, and is more interactive in teaching them skills they may adopt at home for improved sleep.

CHAPTER 9: CONCLUSION

Although the purpose of this quality improvement project was to educate providers in implementing the PSQI tool in order to identify those patients with insomnia as well as to provide sleep hygiene education, many barriers deterred participation from both care providers and patients.

At the conclusion of this project, only four patients responded to the screening tool questionnaire and received sleep hygiene education. The goal of increasing provider use of the tool was not met largely due staff turnover within the practice, and the recent integration of telehealth visits. The patient response to emails was lower than expected; the implementation of the tool is better suited for in-person patient visits. No matter the method, identification of those suffering with insomnia and the use of sleep hygiene techniques is important and should be integrated into care when appropriate.

APPENDIX A: THE PITTSBURGH SLEEP QUALITY INDEX (PSQI)

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions. During the past month,

1. When have you usually gone to bed? _____

2. How long (in minutes) has it taken you to fall asleep each night? _____

3. When have you usually gotten up in the morning? _____

4. How many hours of actual sleep do you get at night? (This may be different than the number of hours you spend in bed) _____

5. During the past month, how often have you had trouble sleeping because you...	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times week (3)
a. Cannot get to sleep within 30 minutes				
b. Wake up in the middle of the night or early morning				
c. Have to get up to use the bathroom				
d. Cannot breathe comfortably				
e. Cough or snore loudly				
f. Feel too cold				
g. Feel too hot				
h. Have bad dreams				
i. Have pain				
j. Other reason(s), please describe, including how often you have had trouble sleeping because of this reason(s):				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)
9. During the past month, how would you rate your sleep quality overall?				

Component 1 #9 Score.....C1_____

Component 2 #2 Score (15min=0; 16-30 min=1; 31-60 min=2, >60 min=3) + #5a Score
(if sum is equal 0=0; 1-2=1; 3-4=2; 5-6=3) .....C2_____

Component 3 #4 Score (>7=0; 6-7=1; 5-6=2; <5=3) ..... C3_____

Component 4 (total # of hours asleep)/(total # of hours in bed) x 100
>85%=0, 75%-84%=1, 65%-74%=2, <65%=3 .....C4_____

Component 5 Sum of Scores #5b to #5j (0=0; 1-9=1; 10-18=2; 19-27=3)…….....C5_____

Component 6 #6 Score .....,C6_____

Component 7 #7 Score + #8 Score (0=0; 1-2=1; 3-4=2; 5-6=3)…….... C7_____

Add the seven component scores together _____ **Global PSQI Score** _____ Buysse, D.J., Reynolds III, C.F., Monk, T.H., Berman, S.R., & Kupfer, D.J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Journal of Psychiatric Research, 28*(2), 193-213.

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APPENDIX B: PSQI PERMISSION LETTER

Sent on behalf of Dr. Buysse

Dear Michelle,

You have my permission to use the PSQI for clinical purposes. You can find the instrument, scoring instructions, the original article, links to available translations, and other useful information at www.sleep.pitt.edu under the Measures/Instruments tab. Please ensure that the PSQI is accurately reproduced in any on-line version (including copyright information). Please be sure to cite the 1989 paper in any publications that may result from your clinical work.

Please note that Question 10 is not used in scoring the PSQI. This question is for informational purposes only, and may be omitted if it is not needed for clinical purposes.

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Good luck with your clinical program.

Sincerely,

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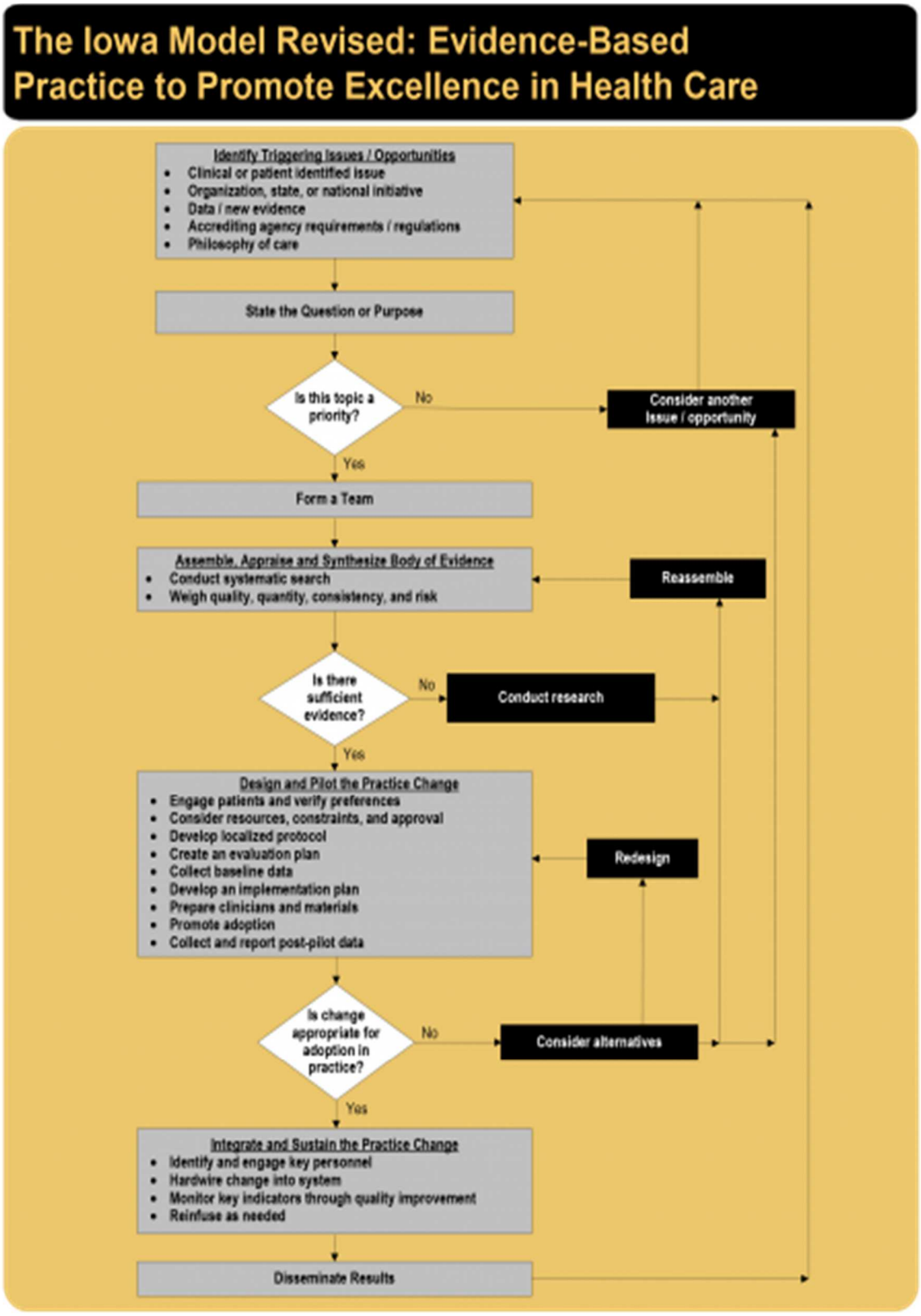
APPENDIX C: THE IOWA MODEL REVISED



APPENDIX D: IOWA MODEL REVISED PERMISSION LETTER

Kimberly Jordan - University of Iowa Hospitals and Clinics <noreply@qemailserver.com>
Fri 3/27/2020 3:11 PM
To: Sadler, Michelle T.

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> In written material, please add the following statement:
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Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-384-9098 with questions.

APPENDIX E: QUESTIONNAIRE EMAIL

Dear Client,

Are you currently struggling with sleep issues several nights per week?

Would you like to receive information on how you can personally take steps to improve your sleep using easy techniques that do not involve medication or side effects?

If so, take the simple questionnaire attached to this email to find out if you meet criteria for insomnia. If you qualify, you will receive information about Sleep Hygiene for your review!

This survey takes about 10 minutes to complete. Your participation in this project survey is completely on a voluntary basis. There are no risks to filling out this survey and your responses will be kept confidential and anonymous. No personal or identifying data will be shared with anyone outside of this practice.

This project has been reviewed by the Institutional Review Board at the University of North Carolina at Chapel Hill and has been determined as exempt from further review. If you have any questions regarding this study and your participant rights, please contact the IRB office at (919)966-3113 or irb_questions@unc.edu

Please feel free to contact me Michelle Sadler at michellesadler@--------.com.

By filling out the PSQI form and submitting a reply to this email, you are consenting to receive information regarding sleep hygiene education. Your response will be kept confidential and will not be shared with anyone.

APPENDIX F: QUESTIONNAIRE

Pre-Implementation Insomnia and Sleep Hygiene Education for Caregivers

1. I find that many psychiatric patients suffer from insomnia.
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree
2. I feel confident in my knowledge of Sleep Hygiene techniques.
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree
3. I am familiar with the Pittsburgh Sleep Quality Index (PSQI) screening tool
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree
4. I believe that patients can benefit from improved sleep quality and hours.
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree

5. I am consistent in utilizing the PSQI to identify patients with insomnia
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree

6. I am consistent in providing sleep hygiene education to patients identified as having insomnia.
    - Strongly agree
    - Agree
    - Somewhat agree
    - Neither agree nor disagree
    - Somewhat disagree
    - Disagree
    - Strongly disagree

APPENDIX G: IRB

IRB
Mon 5/11/2020 4:23 PM

To:

Palmer, Carrie Farr;

Sadler, Michelle T.

To: Michelle Sadler and Carrie Palmer
School of Nursing

From: Office of Human Research Ethics

Date: 5/11/2020
RE: Determination that Research or Research-Like Activity does not require IRB Approval
Study #: 20-1263

Study Title: Improving Sleep Quality and Hours in Patients in the Outpatient Psychiatric Setting Using Sleep Hygiene Education and Screening Tools

This submission, Reference ID 284946, was reviewed by the Office of Human Research Ethics, which has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (e or l) and 21 CFR 56.102(c)(e)(l)] and does not require IRB approval.

Study Description:

Purpose: The purpose of this practice change project is to implement a standard sleep hygiene screening tool in an outpatient psychiatric practice setting in order to promote better sleep hygiene education to any patient identified with insomnia.

Participants: Providers in an outpatient psychiatric office

Procedures (methods): This quality improvement project will set out to implement the standard PSQI screening tool by providers in the psychiatric outpatient practice. The PSQI tool will be incorporated into the routine assessments of patients who meet criteria in the practice to screen for insomnia. The screening tool will be included on an already required pre-visit mood assessment scale on the same page and will be scanned and uploaded into the chart for ease of use and tracking. Patients with reported insomnia based on the tool will be provided a standard sleep hygiene educational program. The project will be implemented over a two-month period. Will access the chart for provider compliance and frequency in using the tool to determine if protocol was followed.

Providers will determine if patients meet criteria for insomnia based on their PSQI score. Patients identified as having sleep disturbances will be provided with sleep hygiene education handouts for study to review outside of the practice, as well as sleep diaries for tracking sleep, and will be given verbal education during visits by medical providers.

A pre and post Qualtrics anonymous survey will be given to providers to assess their knowledge of Sleep hygiene and their assessment of sleep quality.

Please be aware that approval may still be required from other relevant authorities or "gatekeepers" (e.g., school principals, facility directors, custodians of records), even though IRB approval is not required.

If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.

CC:
Jennifer Alderman, School of Nursing
Lisa Miller , School of Nursing Deans Office
Trent Hopper , School of Nursing Deans OfficeIRB Informational Message - please do not use email REPLY to this address

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